

FIG. 1

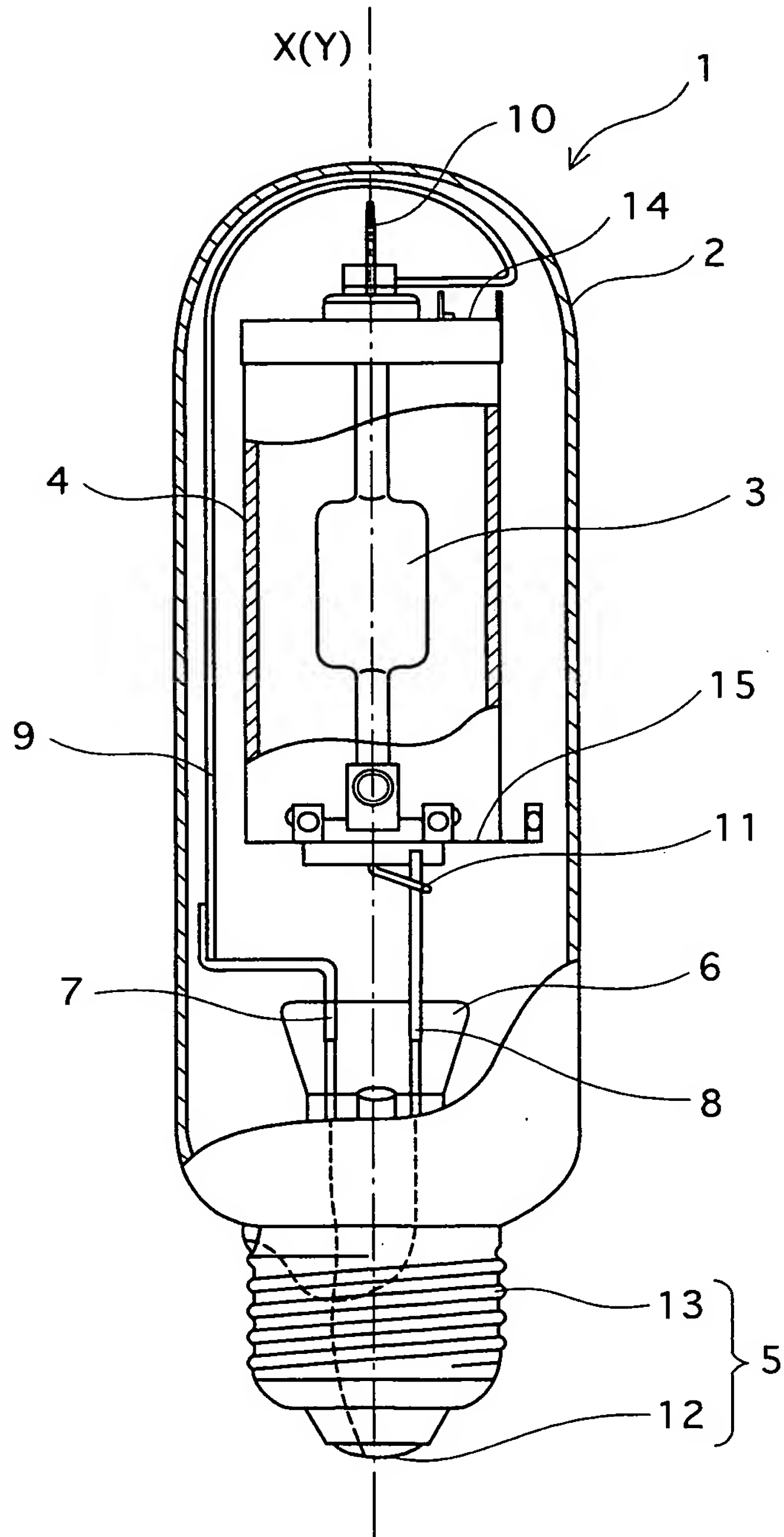


FIG. 2

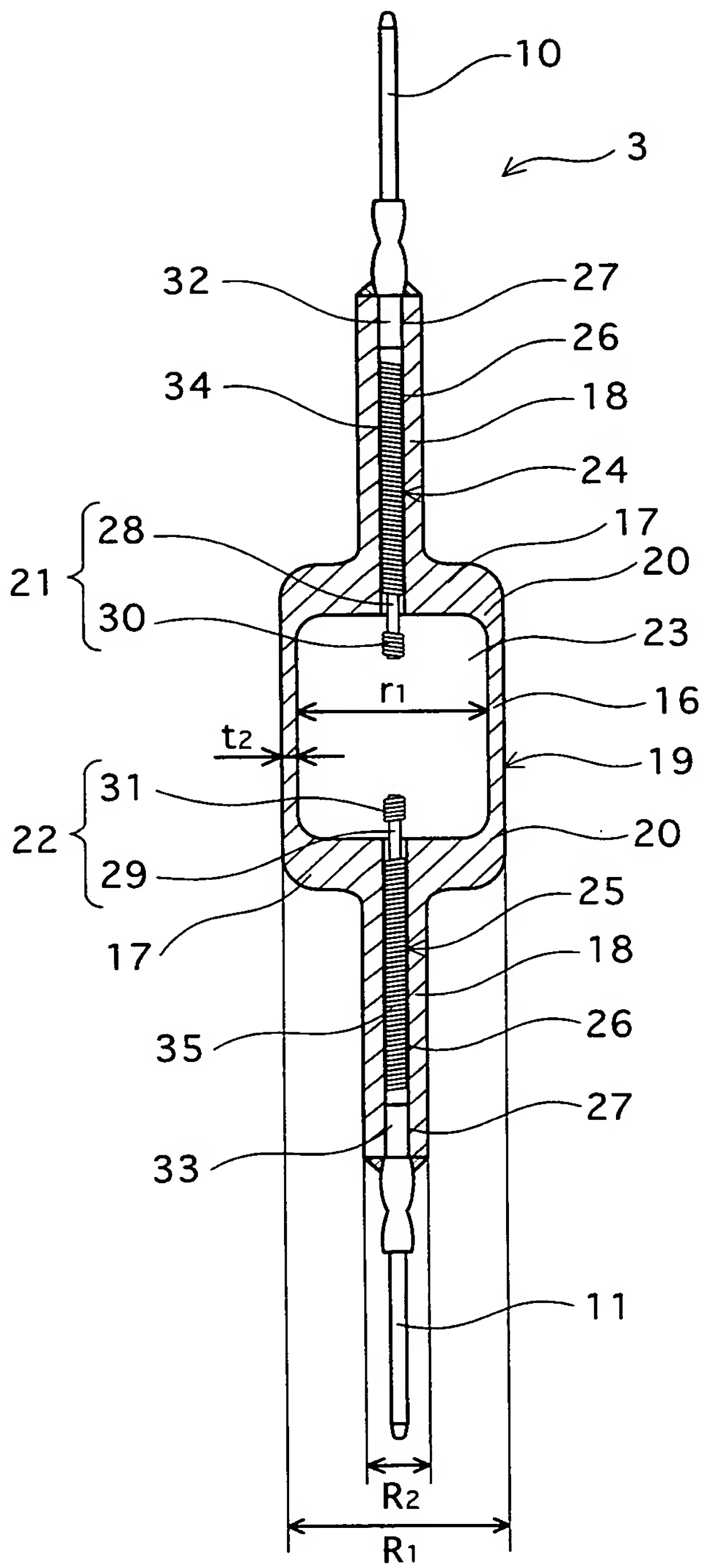


FIG.3

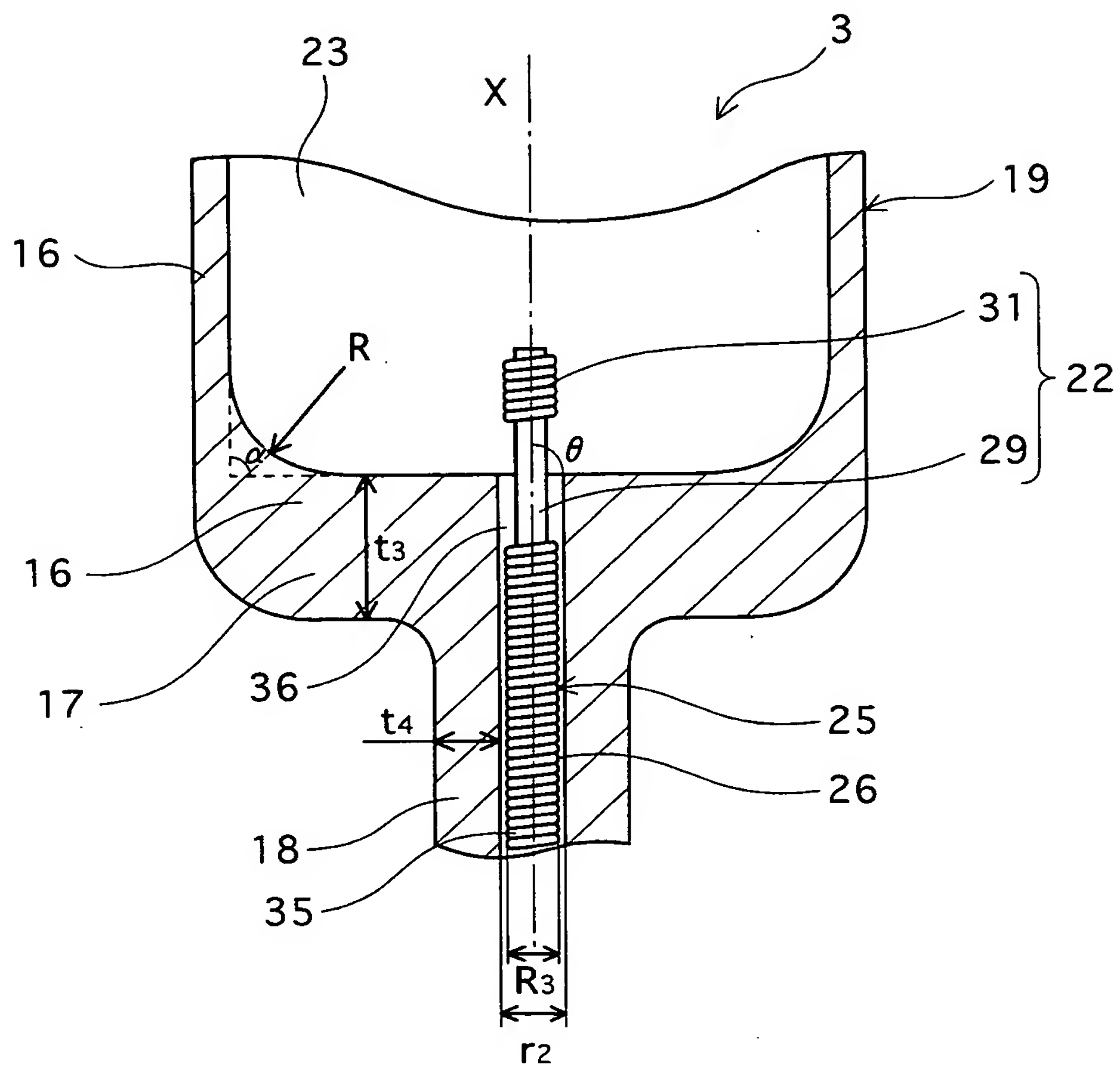


FIG.4

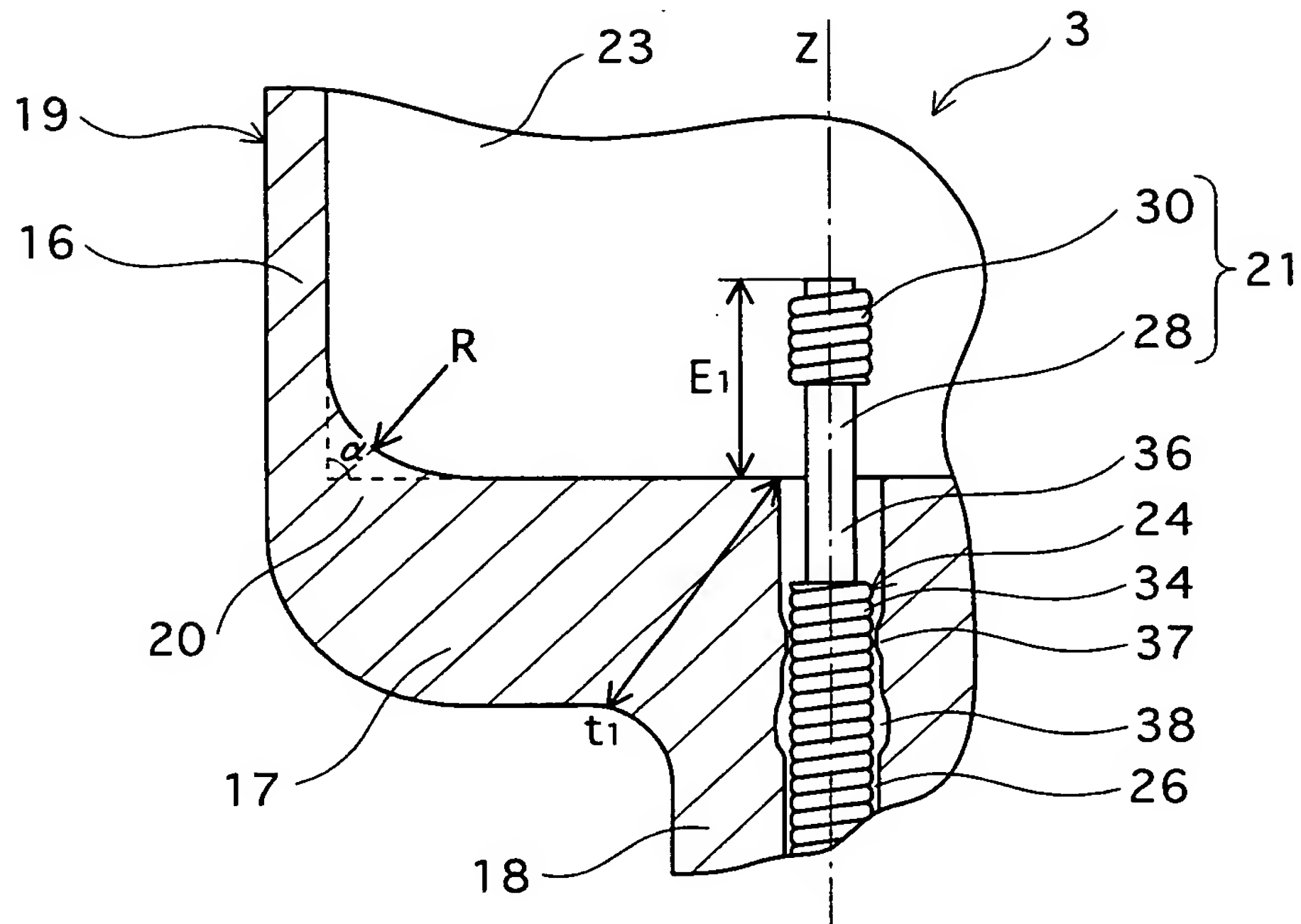


FIG. 5

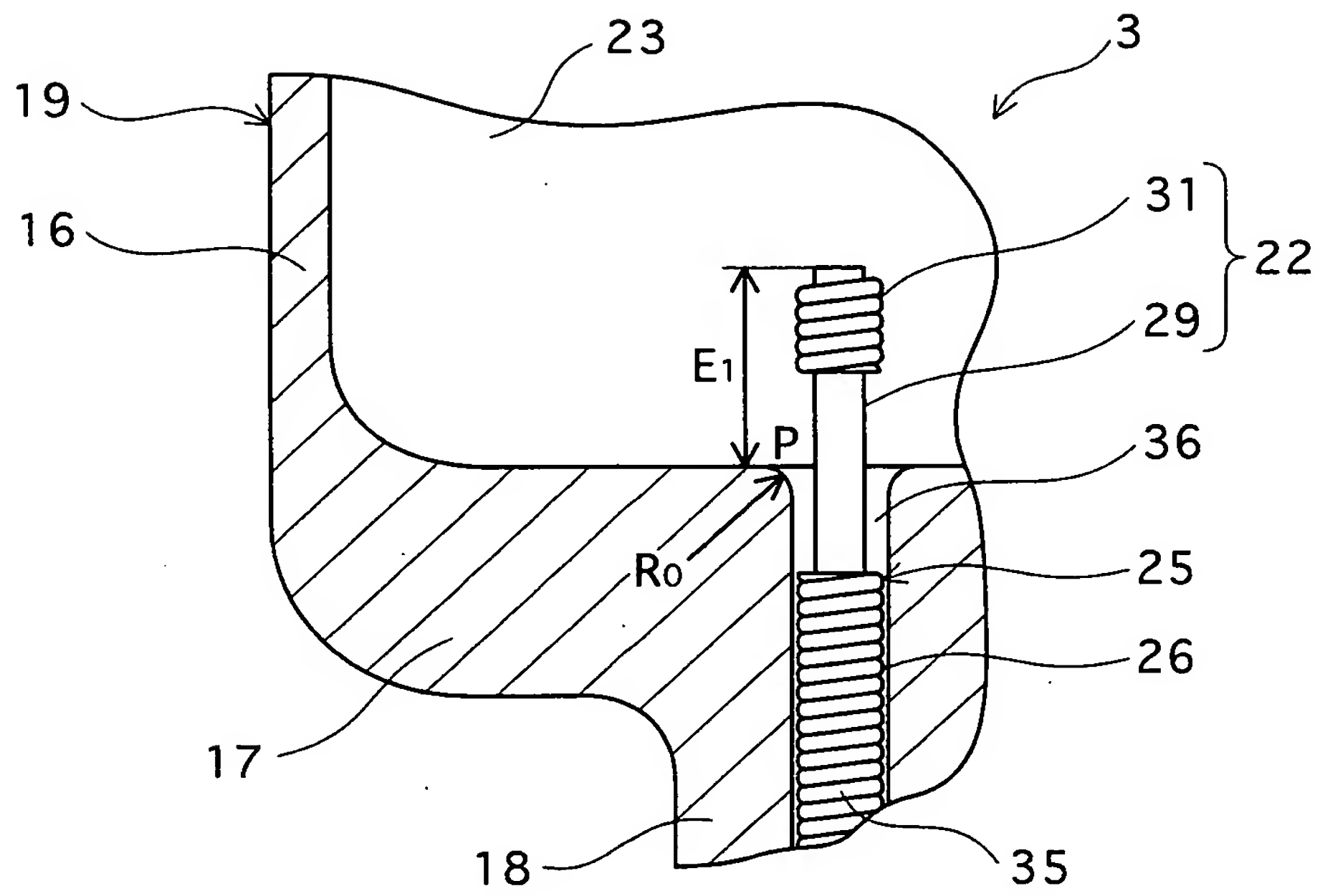


FIG.6

(TABLE 1)

	CURVATURE RADIUS R OF BOUNDARY REGION (mm)	OCCURRENCE OF CRACKS				ASSESSMENT
		AFTER 9000-HOUR LIGHTING PERIOD	AFTER 10000-HOUR LIGHTING PERIOD	AFTER 12000-HOUR LIGHTING PERIOD	AFTER 13000-HOUR LIGHTING PERIOD	
PRACTICAL EXAMPLE 1	0.5	NONE	NONE	NONE	—	VERY GOOD
PRACTICAL EXAMPLE 2	1.0	NONE	NONE	NONE	NONE	EXTREMELY GOOD
PRACTICAL EXAMPLE 3	1.8	NONE	NONE	NONE	NONE	EXTREMELY GOOD
PRACTICAL EXAMPLE 4	2.0	NONE	NONE	NONE	—	GOOD
PRACTICAL EXAMPLE 5	2.5	NONE	NONE	—	—	GOOD
COMPARATIVE EXAMPLE 1	0.3	NONE	—	—	—	BAD
COMPARATIVE EXAMPLE 2	2.7	NONE	—	—	—	BAD

FIG.7

(TABLE 2)

	ELECTRODE PROJECTION LENGTH E1(mm)	MINIMUM WALL THICKNESS t1(mm)	OCCURRENCE OF CRACKS IN BOUNDARY REGION BETWEEN JOINING PORTION AND THIN TUBE PORTION	INITIAL LUMINOUS EFFICIENCY (lm/W)	ASSESSMENT
PRACTICAL EXAMPLE 6	0.4	1.0	OCCURRED	93	BAD
PRACTICAL EXAMPLE 7	0.4	3.5	OCCURRED	90	BAD
PRACTICAL EXAMPLE 8	0.5	0.9	OCCURRED	93	BAD
PRACTICAL EXAMPLE 8	0.5	1.0	NONE	93	GOOD
PRACTICAL EXAMPLE 10	0.5	3.5	NONE	90	GOOD
PRACTICAL EXAMPLE 11	0.5	3.6	NONE	87	BAD
PRACTICAL EXAMPLE 12	4.0	0.5	OCCURRED	92	BAD
PRACTICAL EXAMPLE 13	5.0	0.4	OCCURRED	91	BAD
PRACTICAL EXAMPLE 14	5.0	0.5	NONE	91	GOOD
PRACTICAL EXAMPLE 15	5.0	0.6	NONE	91	GOOD
PRACTICAL EXAMPLE 16	5.0	3.5	NONE	90	GOOD
PRACTICAL EXAMPLE 17	5.0	4.0	NONE	84	BAD
PRACTICAL EXAMPLE 18	5.5	0.5	NONE	91	BAD

FIG.8

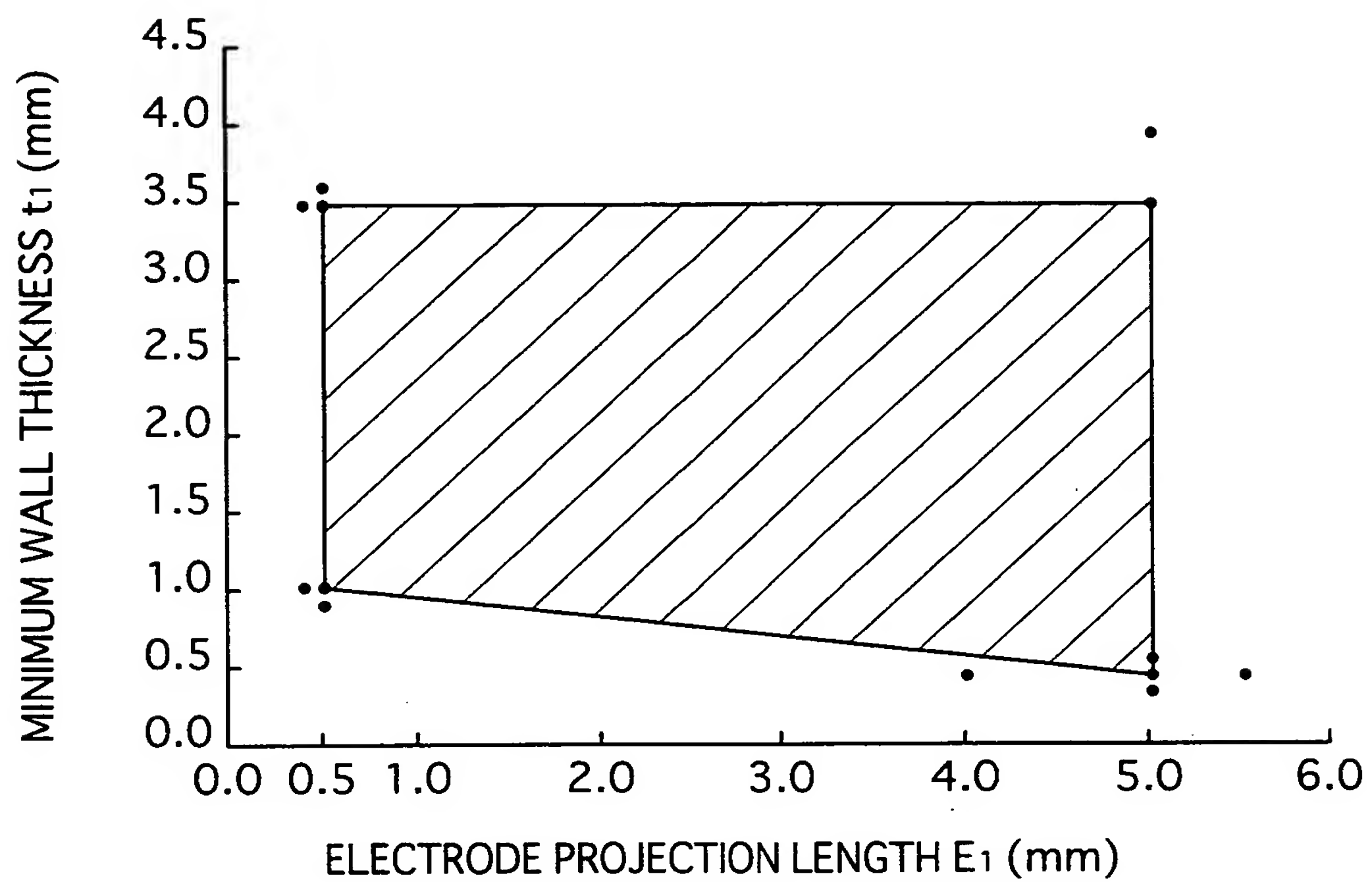


FIG.9

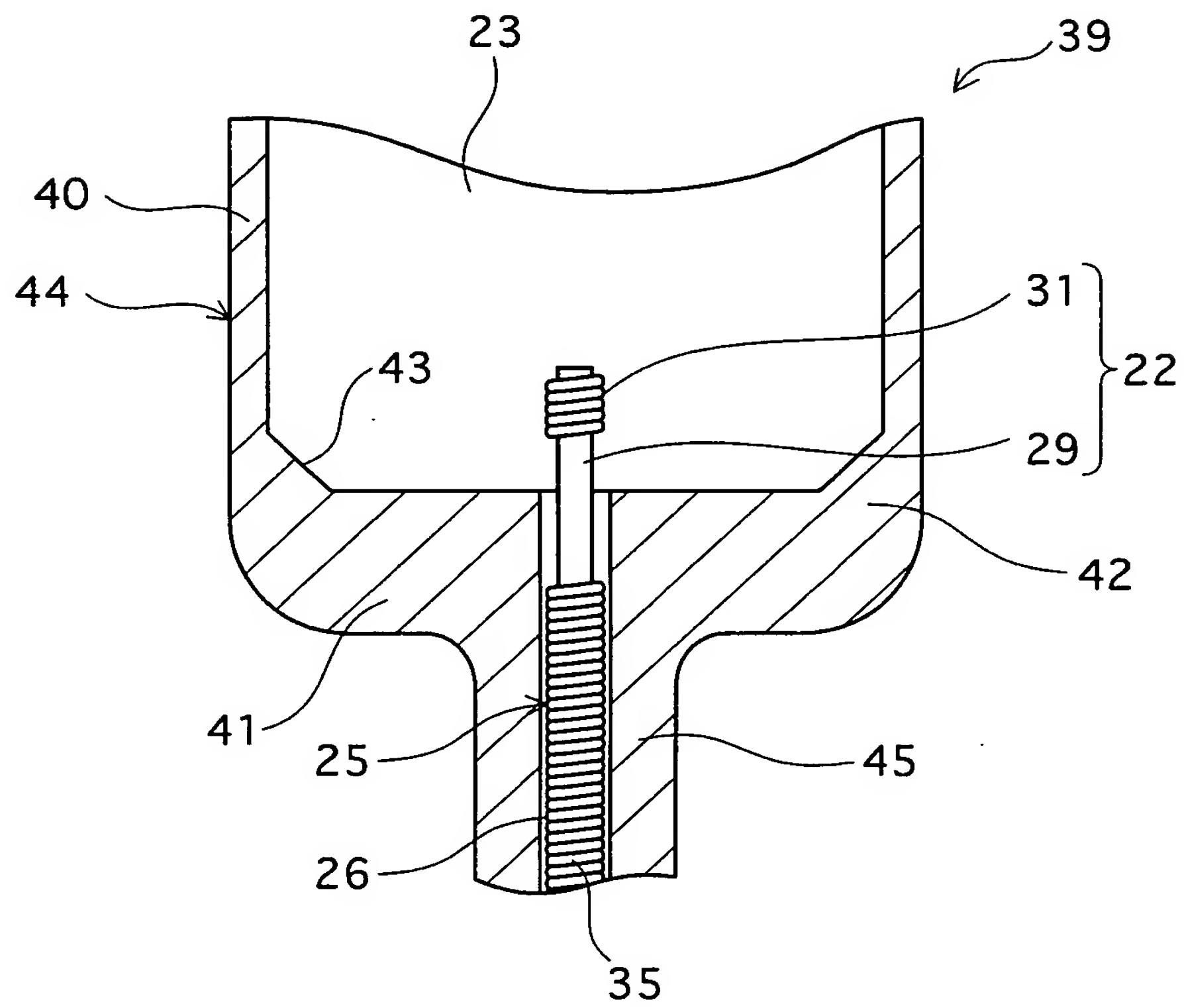


FIG.10

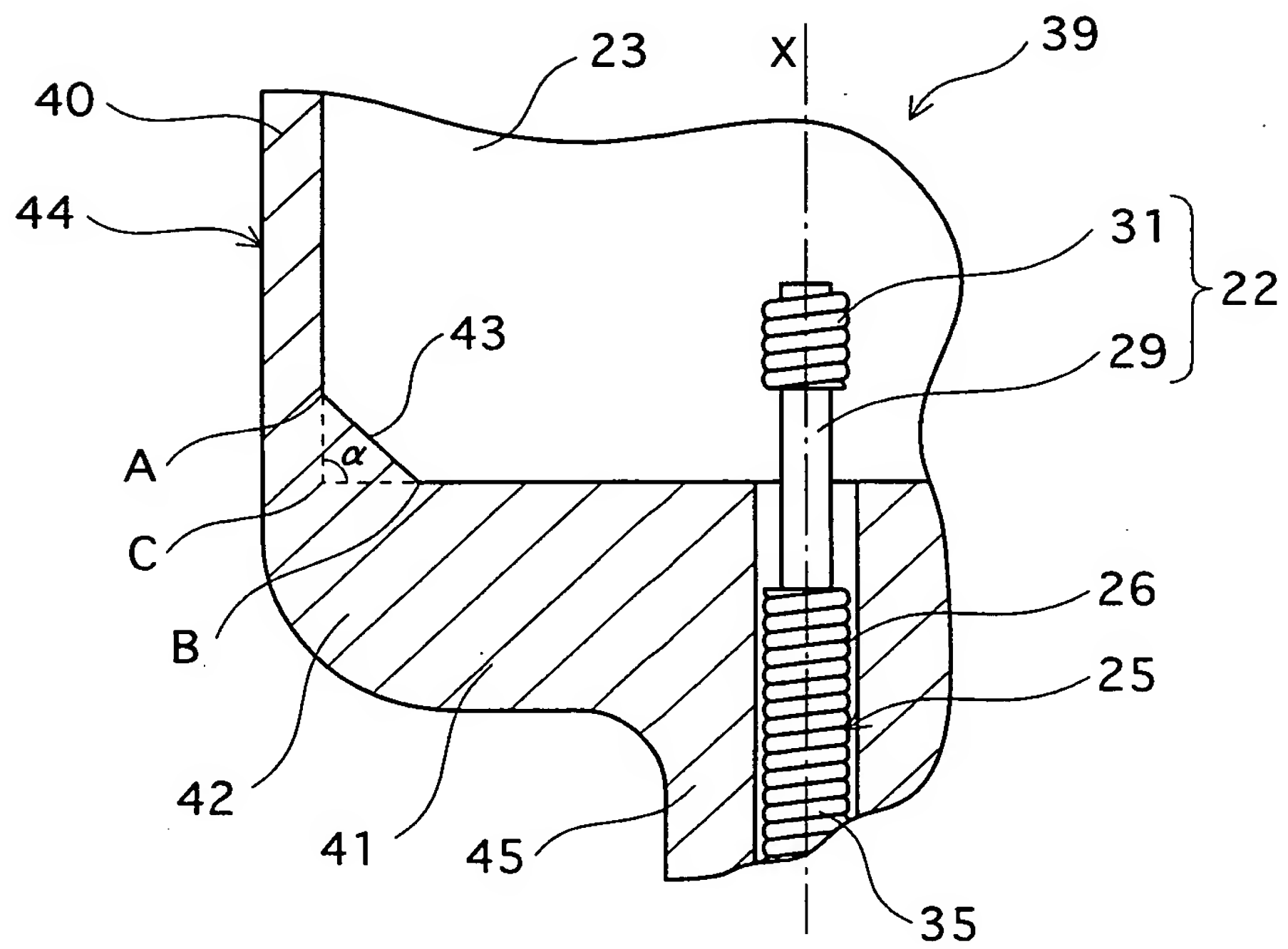


FIG.11

(TABLE 3)

	LENGTH OF LINE AC (mm)	LENGTH OF LINE BC (mm)	OCCURRENCE OF CRACKS			
			AFTER 9000-HOUR LIGHTING PERIOD	AFTER 10000-HOUR LIGHTING PERIOD	AFTER 13000-HOUR LIGHTING PERIOD	ASSESS -MENT
COMP. 3	0.4	0.4	NONE	—	—	BAD
COMP. 4		0.5	NONE	—	—	BAD
COMP. 5		1.5	NONE	—	—	BAD
COMP. 6		2.5	NONE	—	—	BAD
COMP. 7		2.6	NONE	—	—	BAD
PRAC. 19	0.5	0.5	NONE	NONE	NONE	GOOD
PRAC. 20		1.5	NONE	NONE	NONE	GOOD
PRAC. 21		2.5	NONE	NONE	NONE	GOOD
COMP. 8		0.4	NONE	—	—	BAD
COMP. 9		2.6	NONE	—	—	BAD
PRAC. 22	1.5	0.5	NONE	NONE	NONE	GOOD
PRAC. 23		1.5	NONE	NONE	NONE	GOOD
PRAC. 24		2.5	NONE	NONE	NONE	GOOD
COMP. 10		0.4	NONE	—	—	BAD
COMP. 11		2.6	NONE	—	—	BAD
PRAC. 25	2.5	0.5	NONE	NONE	NONE	GOOD
PRAC. 26		1.5	NONE	NONE	NONE	GOOD
PRAC. 27		2.5	NONE	NONE	NONE	GOOD
COMP. 12		0.4	NONE	—	—	BAD
COMP. 13		2.6	NONE	—	—	BAD
PRAC. 28	2.6	0.5	NONE	NONE	NONE	GOOD
PRAC. 29		1.5	NONE	NONE	NONE	GOOD
PRAC. 30		2.5	NONE	NONE	NONE	GOOD
COMP. 14		0.4	NONE	—	—	BAD
COMP. 15		2.6	NONE	—	—	BAD

FIG.12

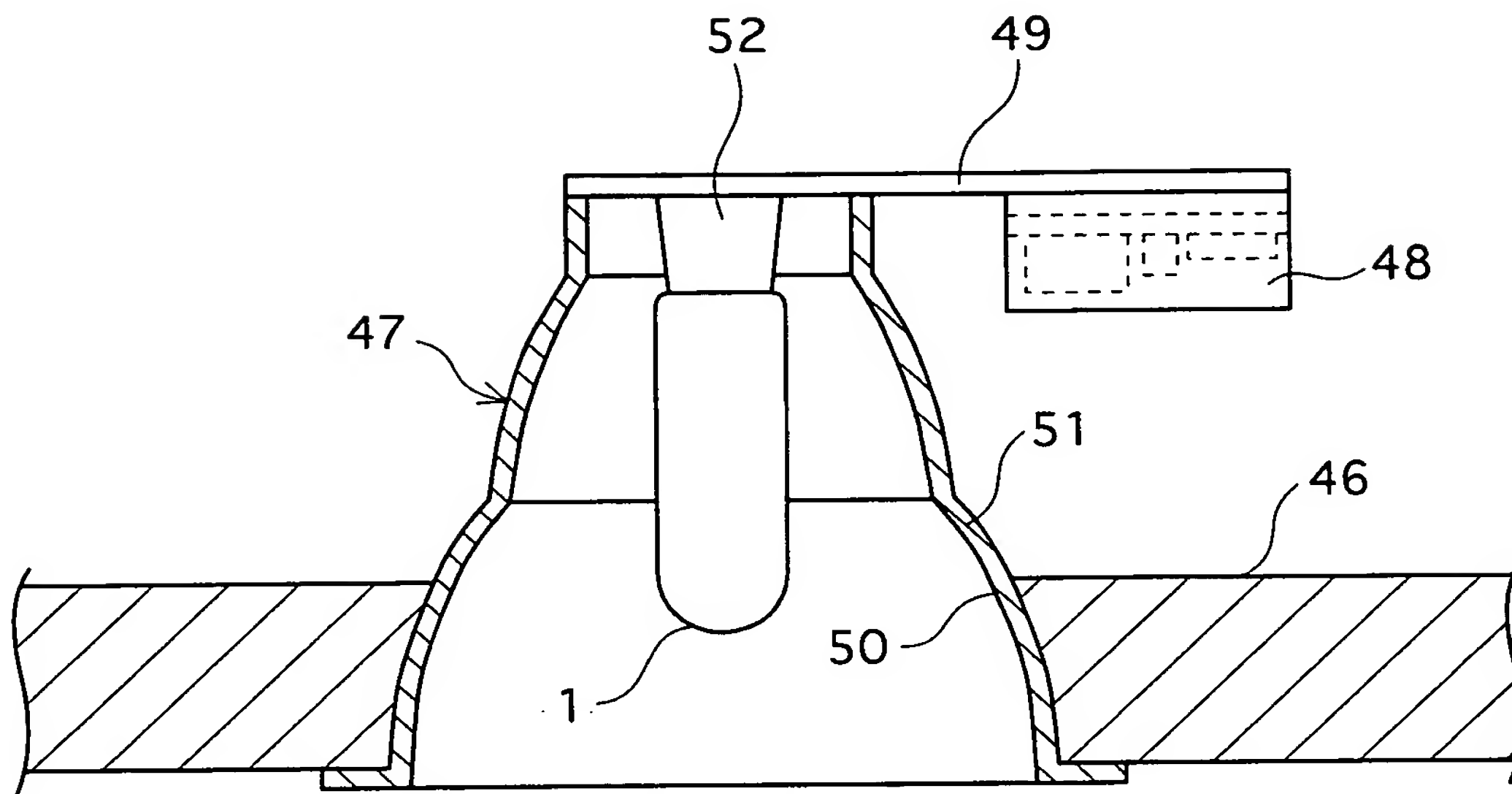


FIG. 14

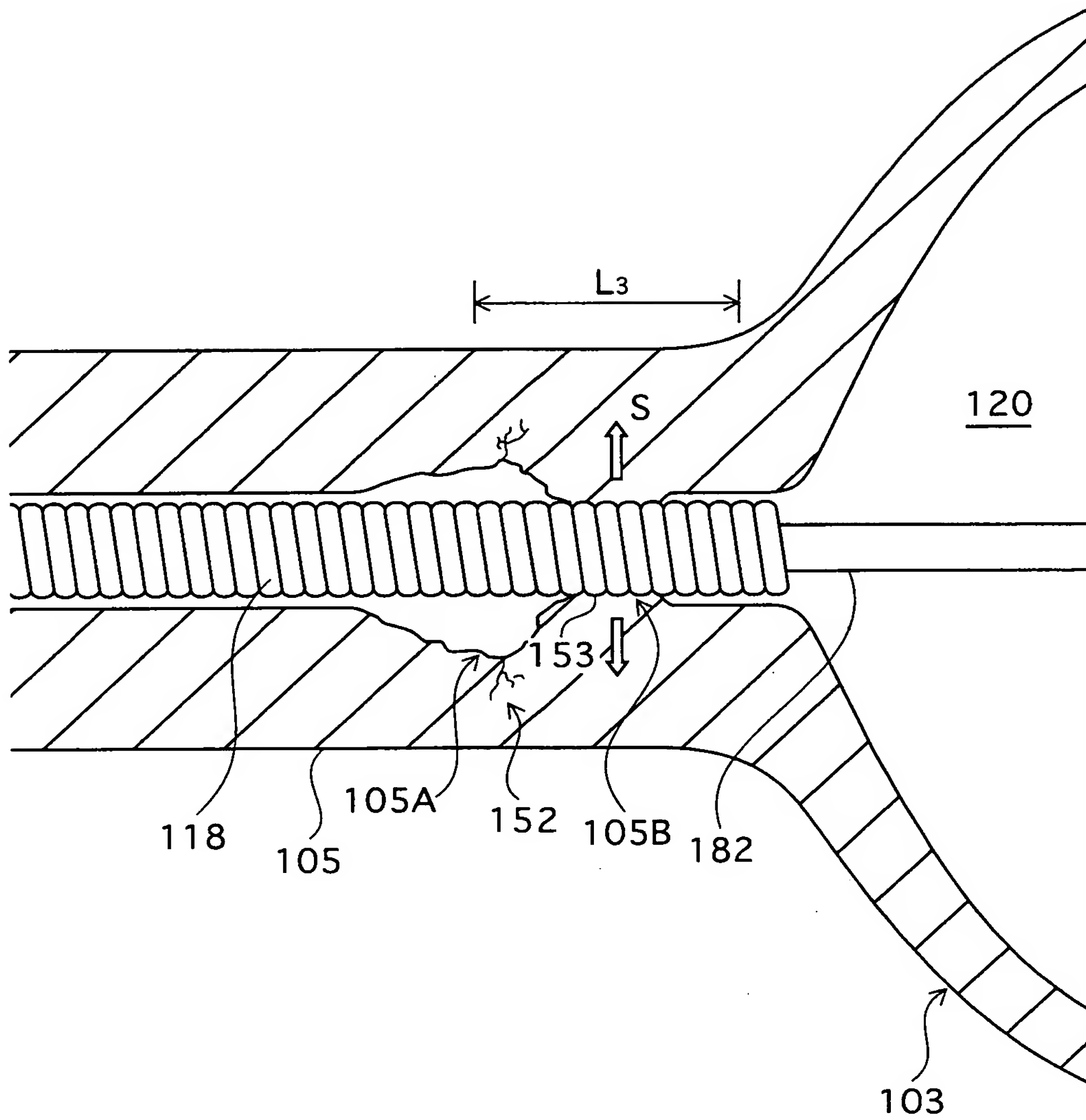


FIG. 15

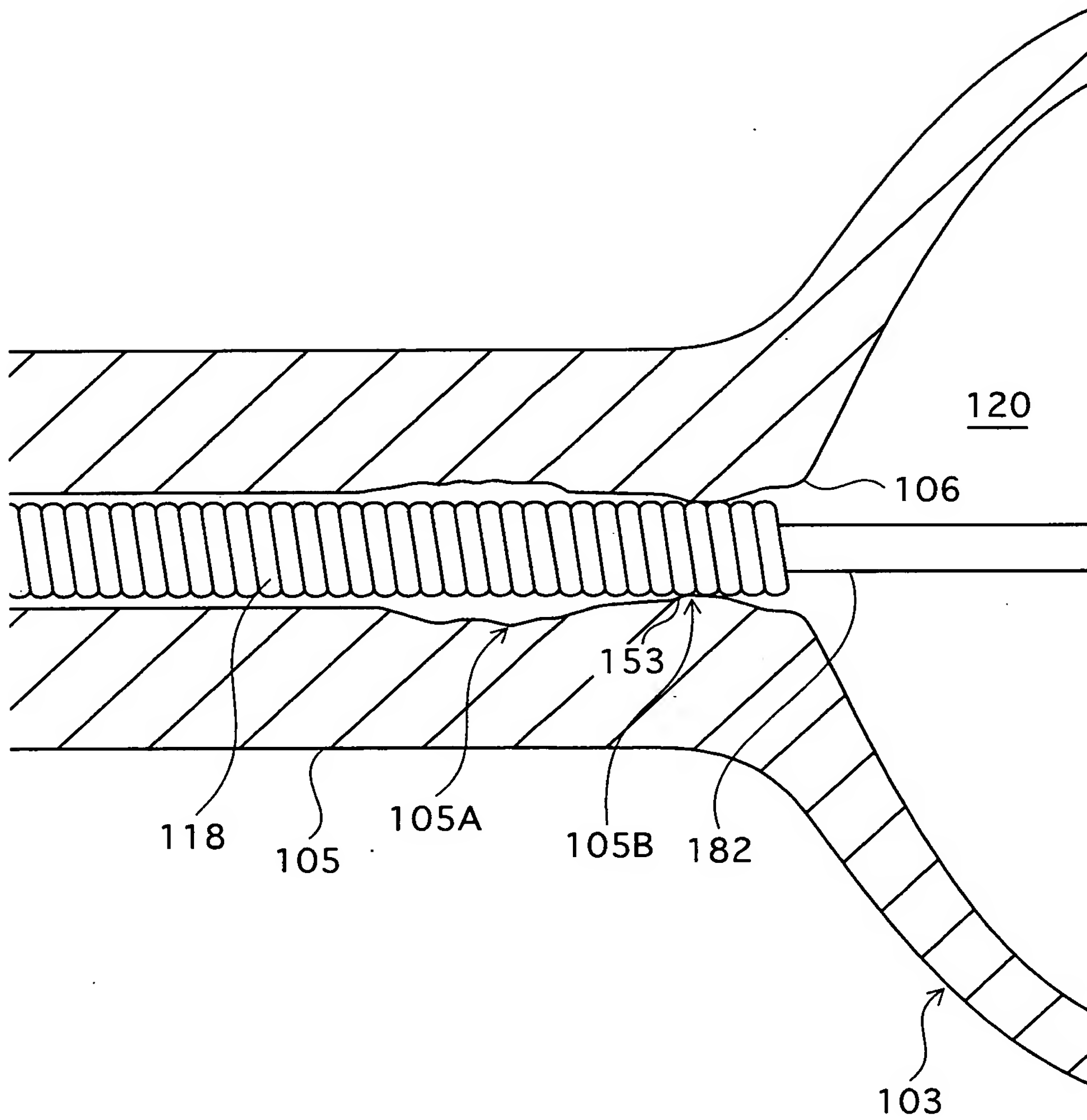


FIG.16

(TABLE 4)

BULB WALL LOADING [W/cm ²]	WALL THICKNESS OF THIN TUBE PORTION [mm]	CaI ₂ COMPOSITION PROPORTION [MOLE %]				
		0	5	30	65	70
30	0.7				90 lm/W	86 lm/W
	0.8	92 lm/W	91 lm/W	90 lm/W	89 lm/W	85 lm/W
	1.0				88 lm/W	84 lm/W
	1.5				85 lm/W	81 lm/W

FIG.17

(TABLE 5)

BULB WALL LOADING [W/cm ²]	WALL THICKNESS OF THIN TUBE PORTION [mm]	Ca ₂ COMPOSITION PROPORTION [MOLE %]				
		0	3	5	30	65
20	0.4	—	—	X	X	X
	0.5	—	—	○	○	○
	0.7	—	—	○	○	○
30	0.7	X	X	X	X	X
	0.8	X	X	○	○	○
	1.1	X	X	○	○	○
	1.5	○	○	○	○	○
40	1.0	—	—	X	X	X
	1.1	—	—	○	○	○
	1.3	—	—	○	○	○

FIG.18

(TABLE 6)

BULB WALL LOADING [W/cm ²]	MINIMUM WALL THICKNESS OF THIN TUBE PORTION [mm]	MAXIMUM WALL THICKNESS OF THIN TUBE PORTION [mm]
20	0.56	1.50
27	0.75	1.50
30	0.83	1.50
40	1.11	1.50

FIG.19

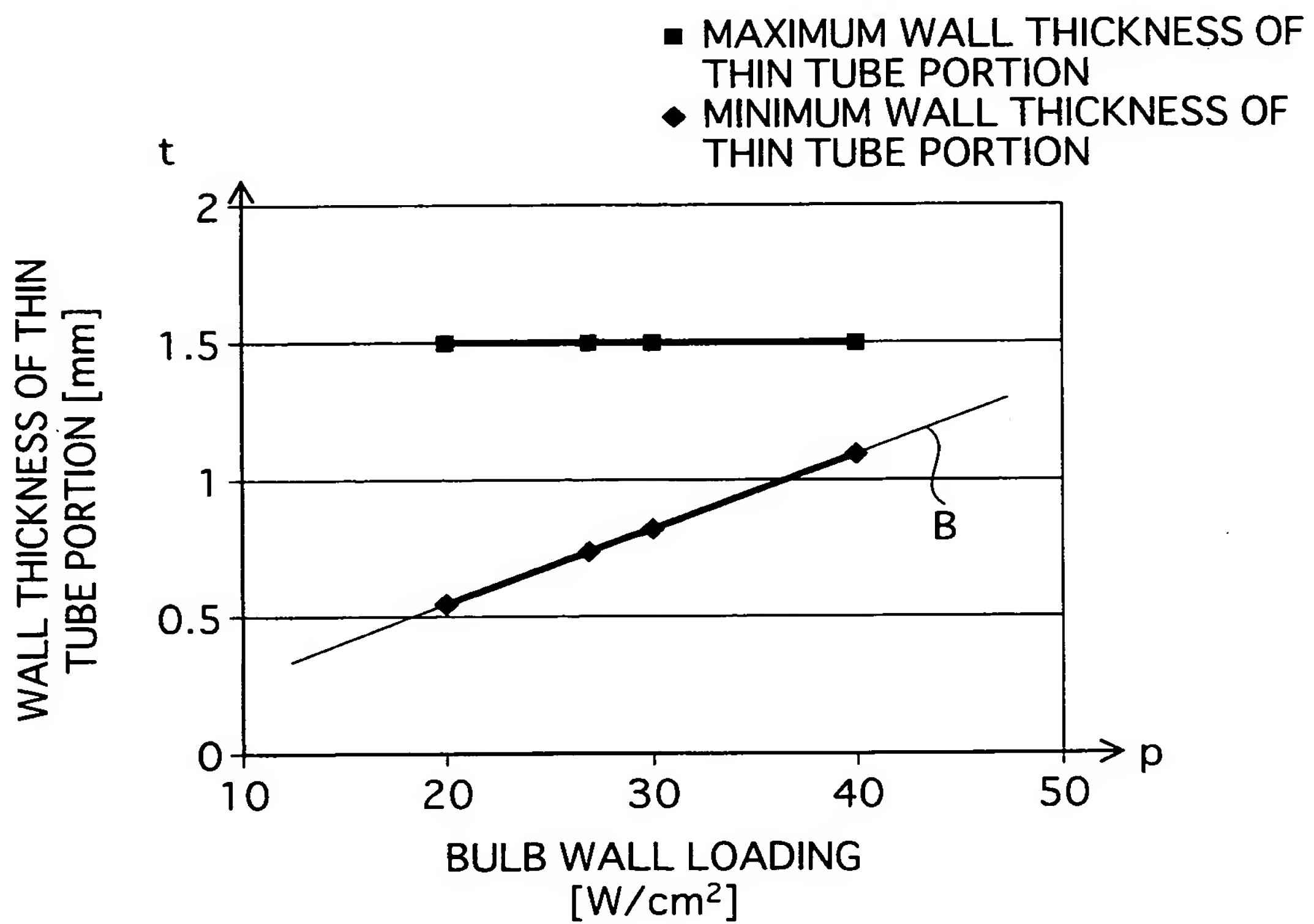


FIG.20

(TABLE 7)

BULB WALL LOADING [W/cm ²]	MINIMUM WALL THICKNESS OF MAIN TUBE PORTION [mm]	MAXIMUM WALL THICKNESS OF MAIN TUBE PORTION [mm]
20	0.35	0.56
27	0.47	0.76
30	0.53	0.84
40	0.70	1.12

FIG.21

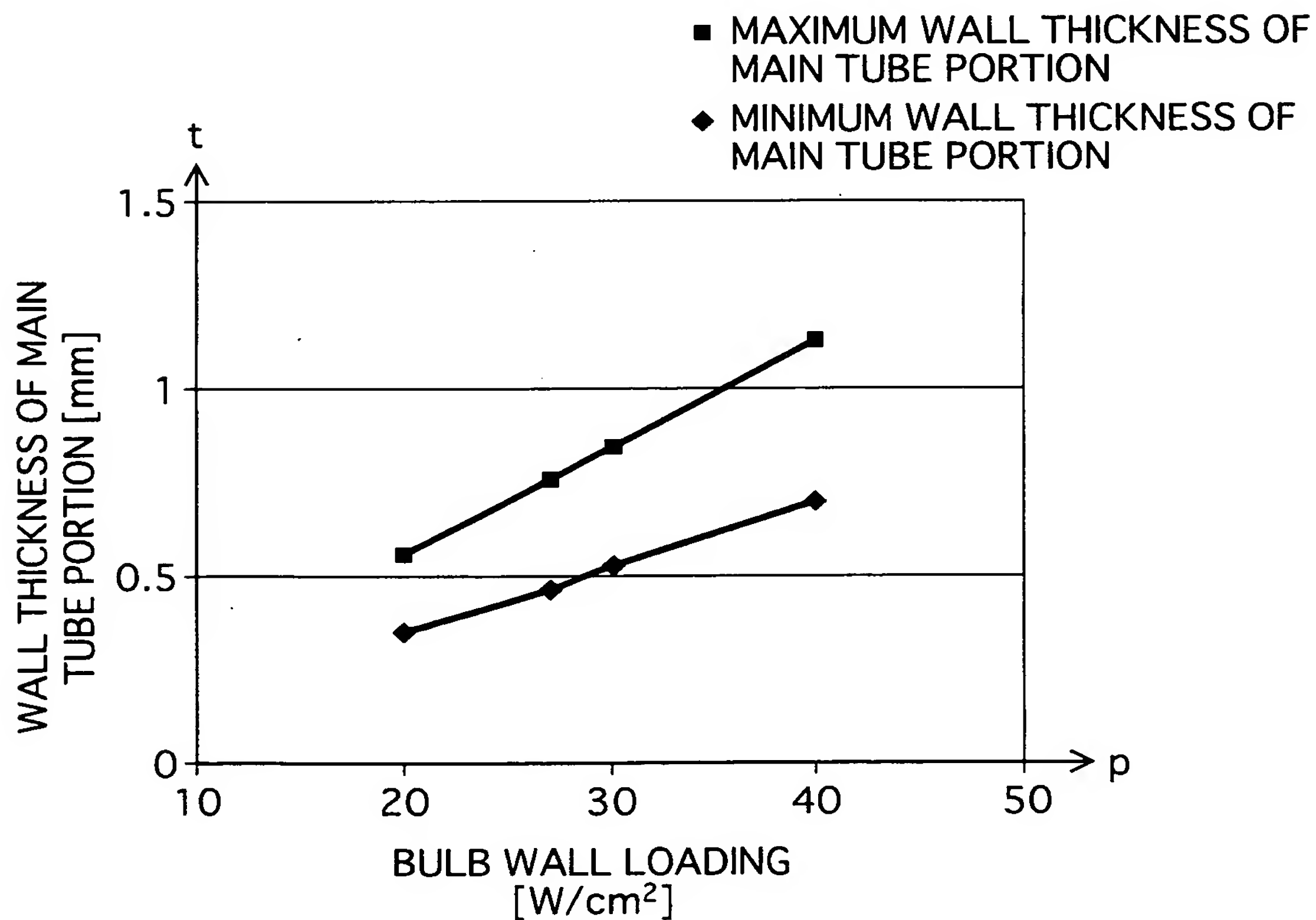


FIG.22

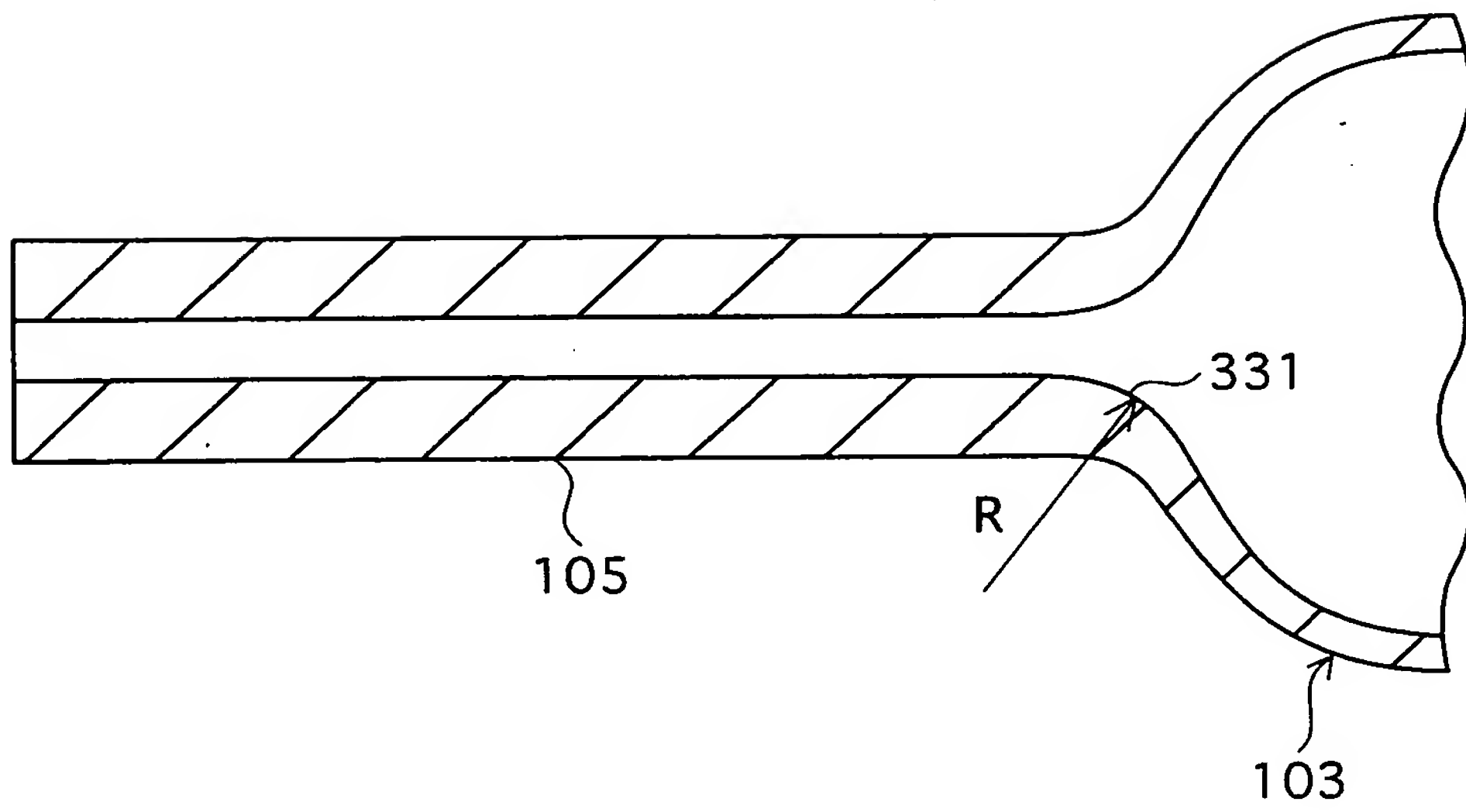


FIG.23

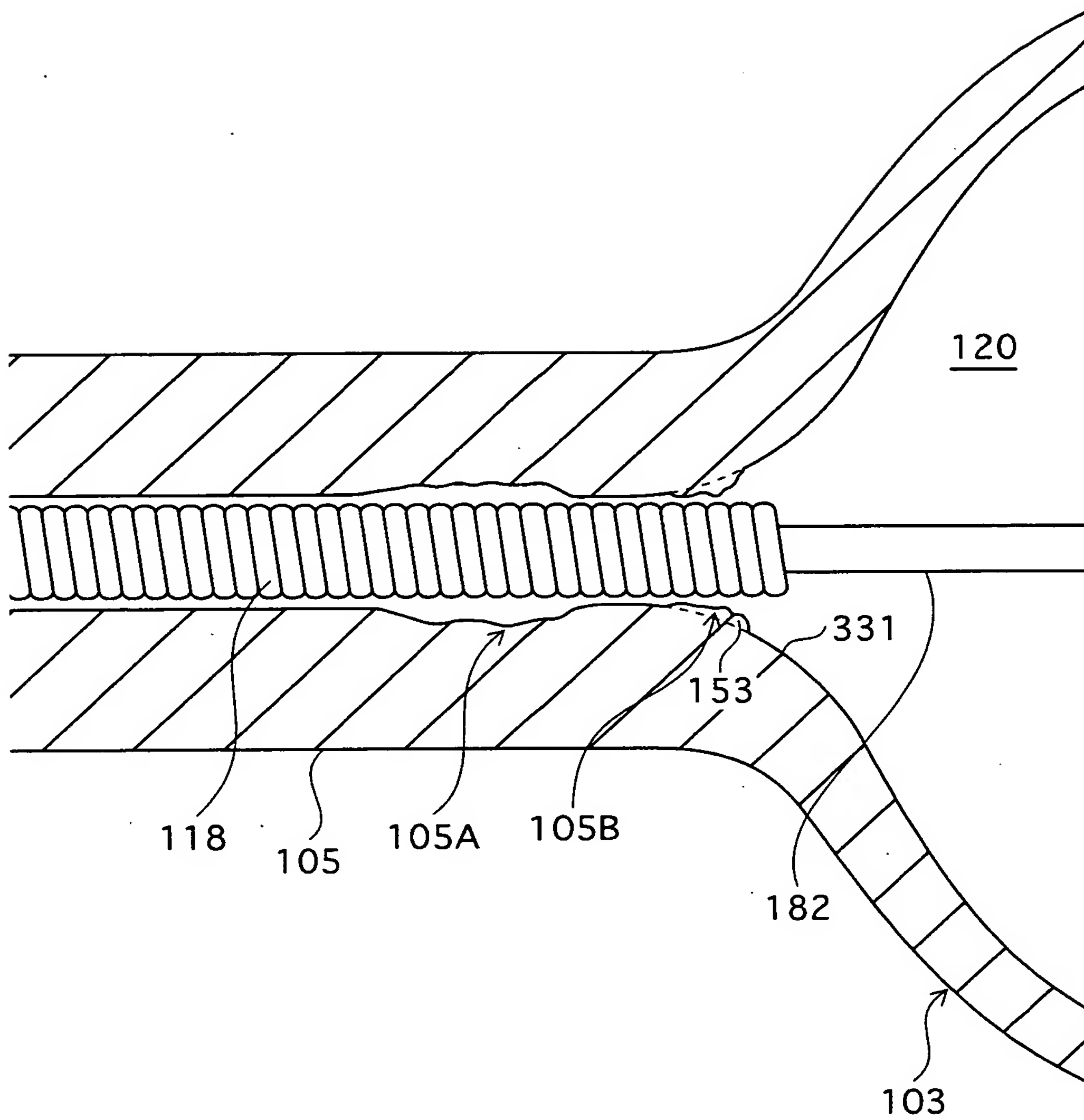


FIG. 24

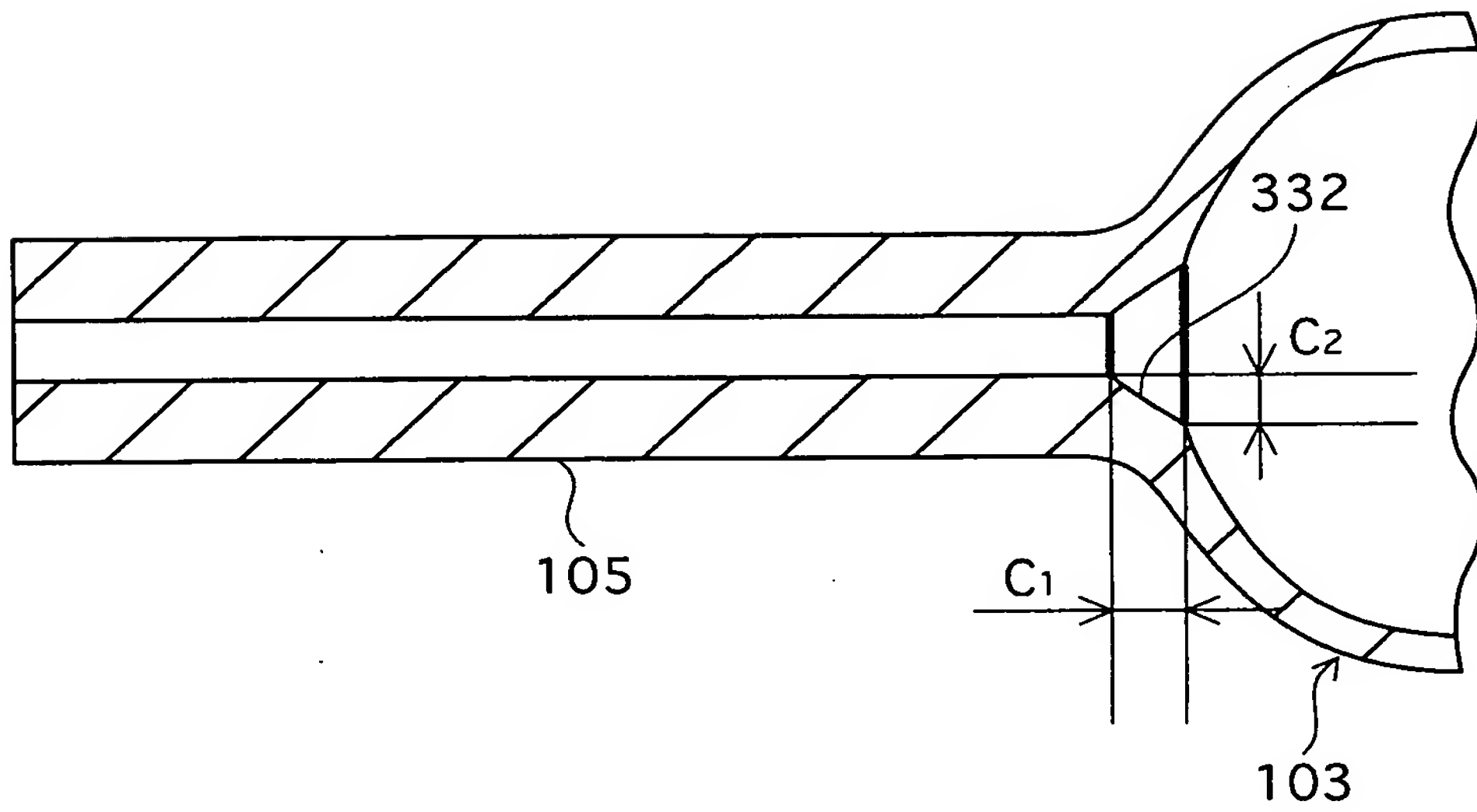


FIG.25A

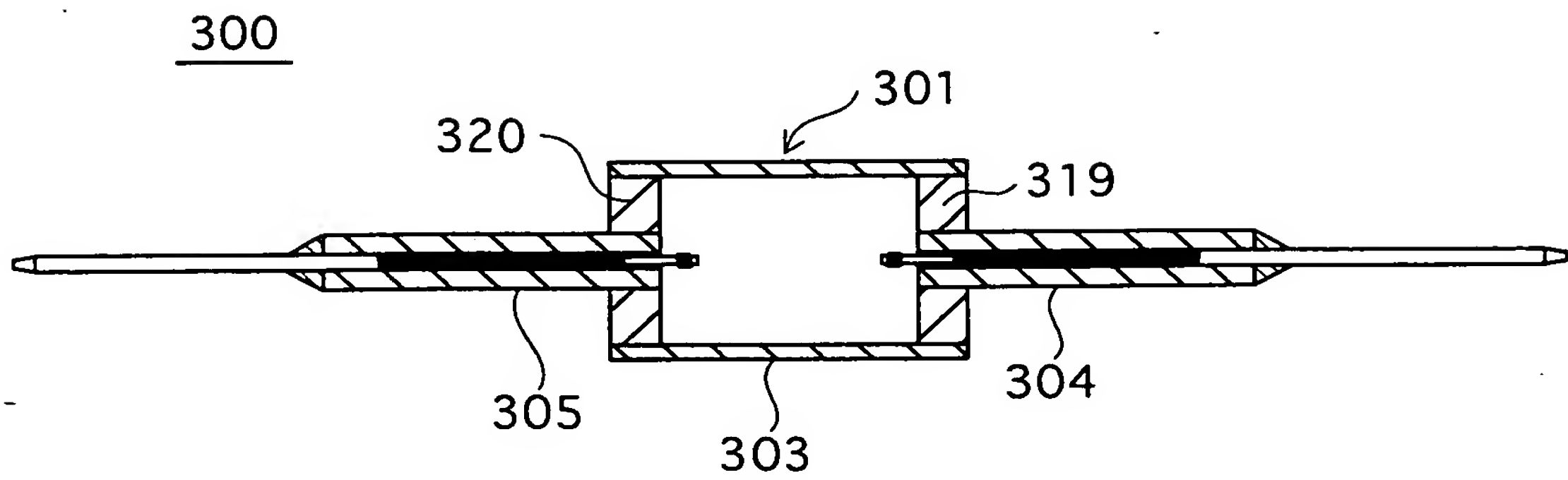


FIG.25B

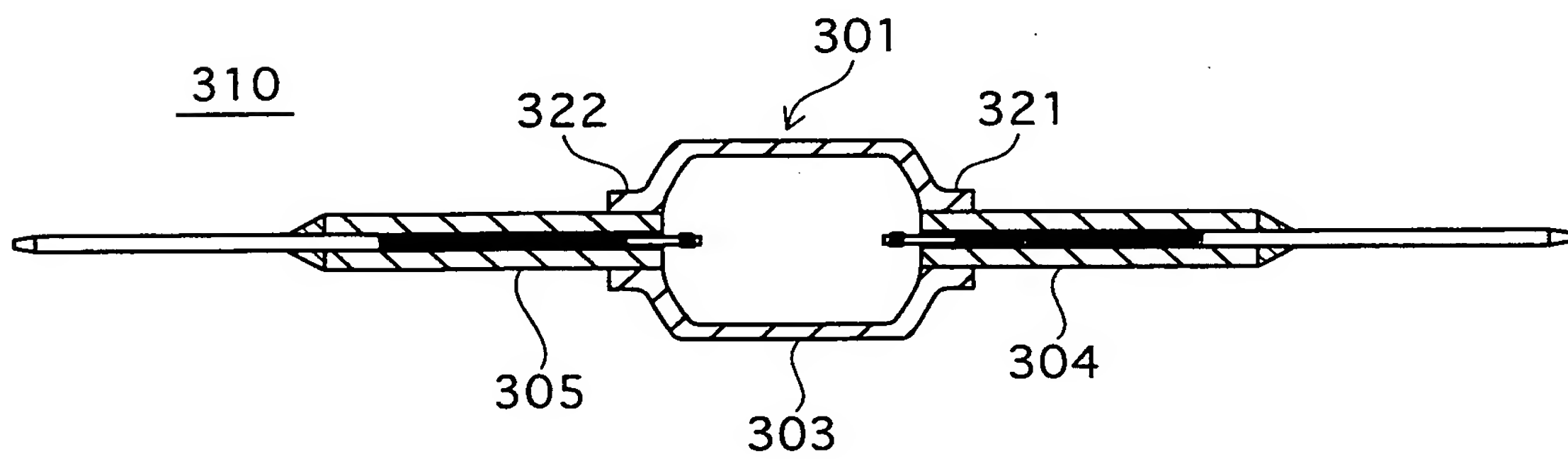


FIG. 26

